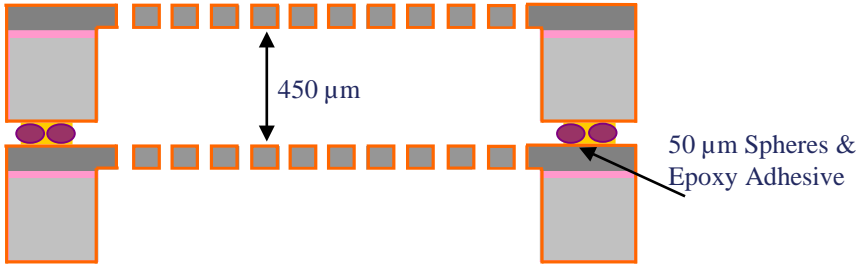
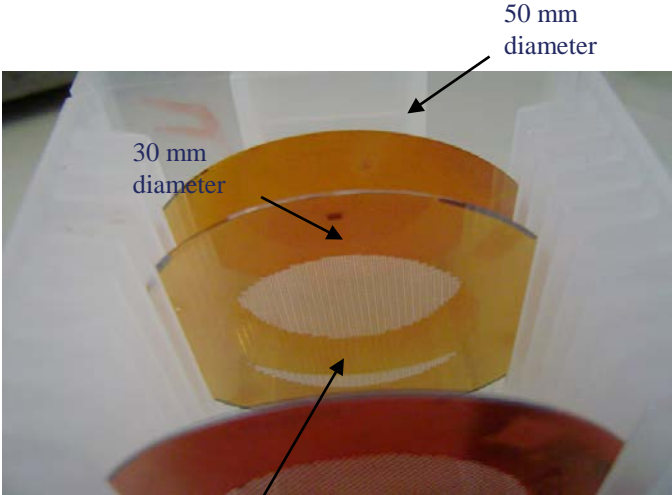
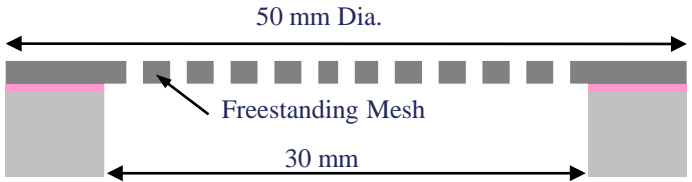
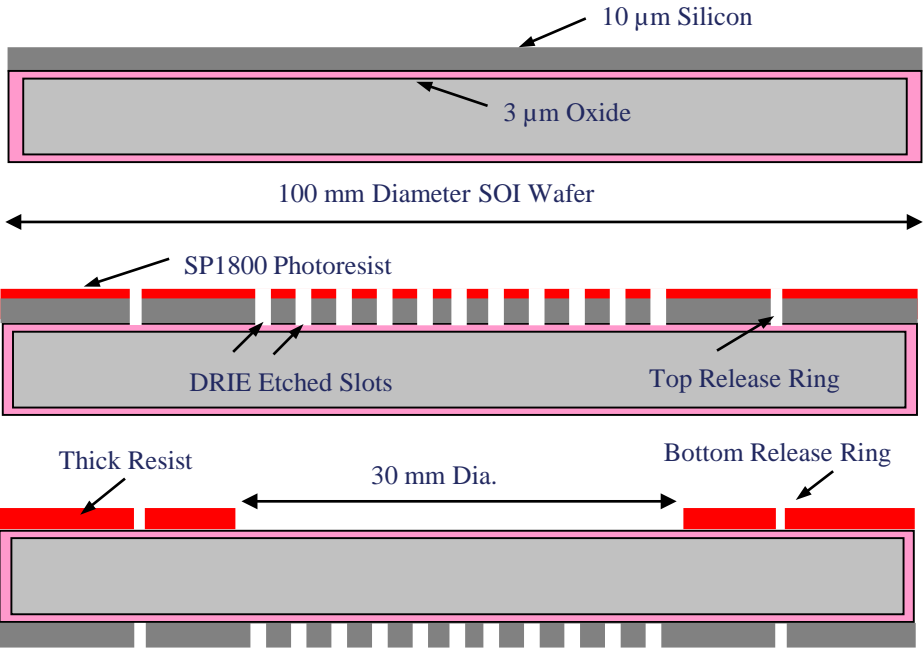


Advances in Frequency Selective Surface Technology for Remote Sensing Radiometers

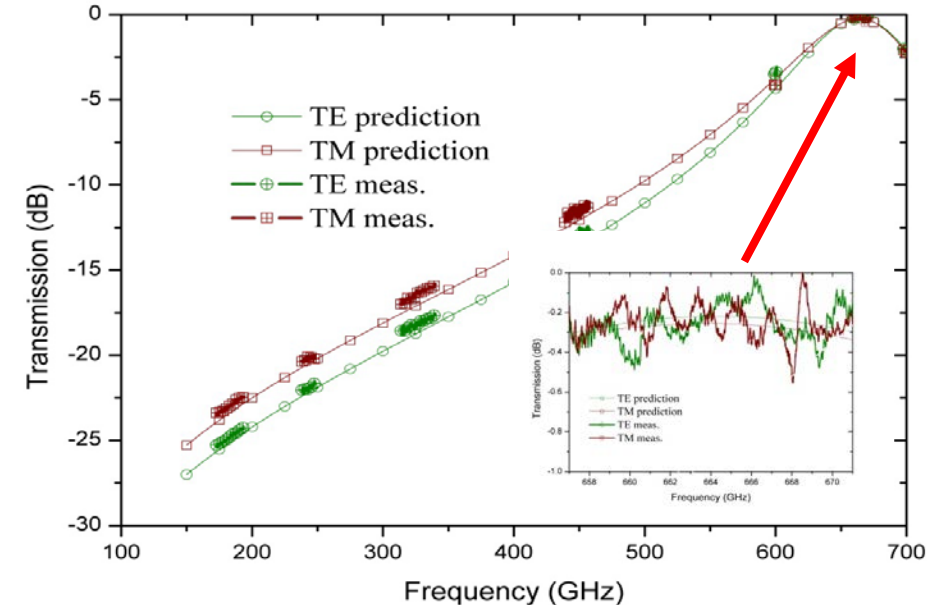
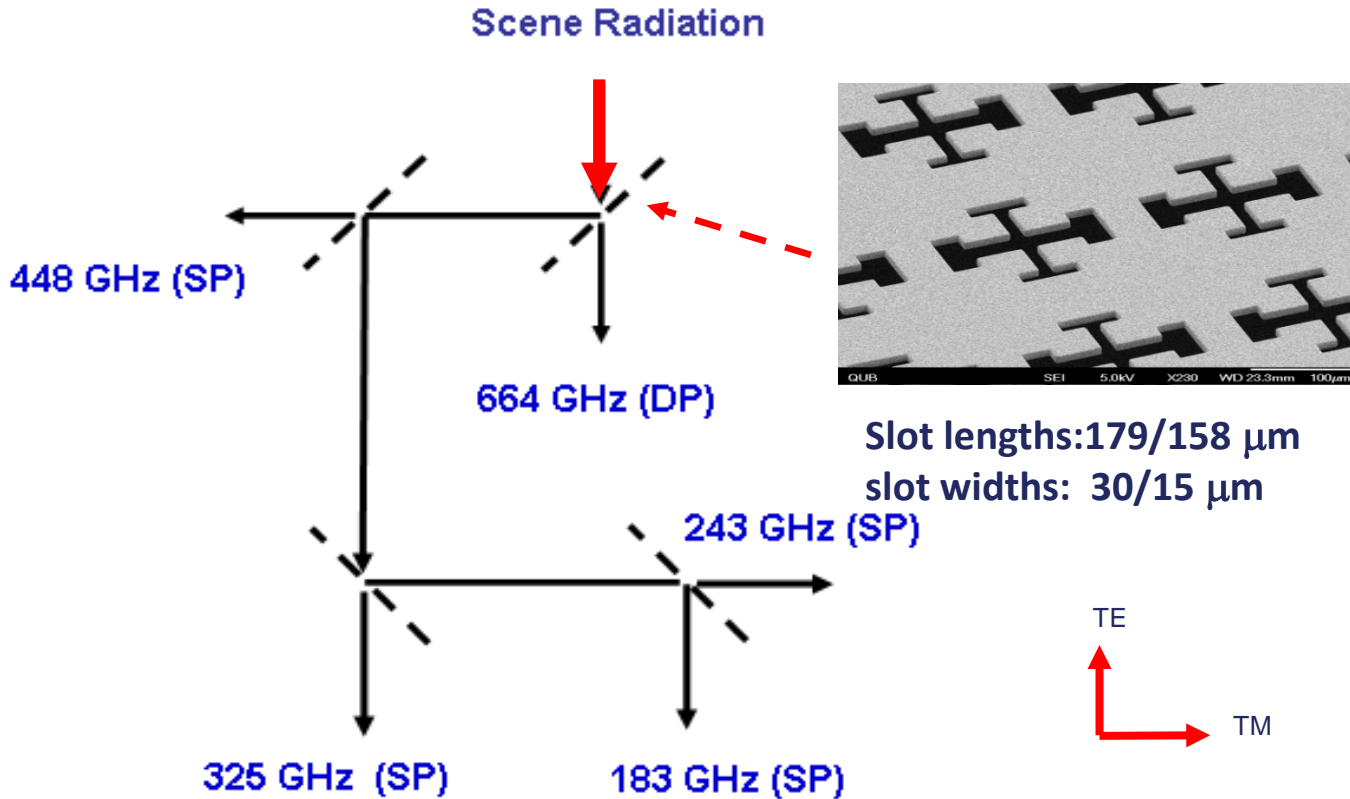
Raymond Dickie, Robert Cahill

*Center for Wireless Innovation, ECIT Queen's University Belfast,
Northern Ireland*

Freestanding FSS Technology

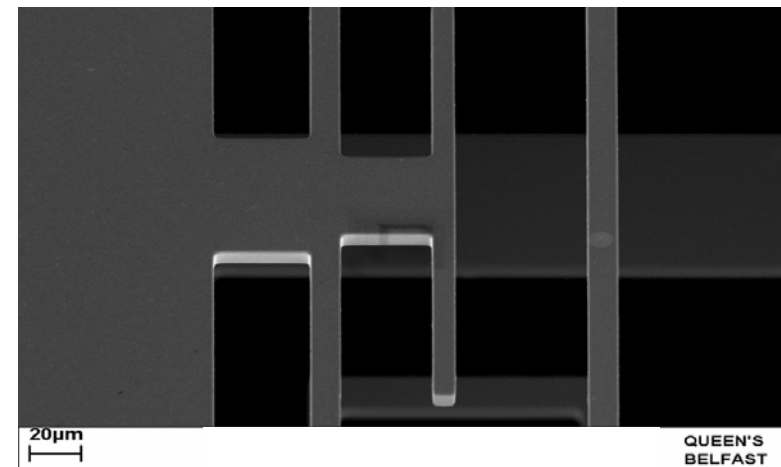
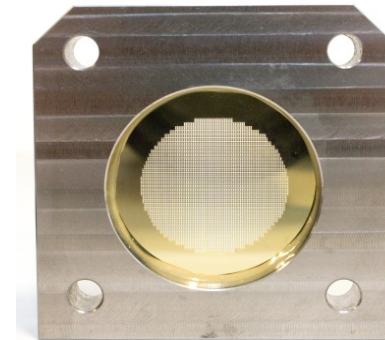
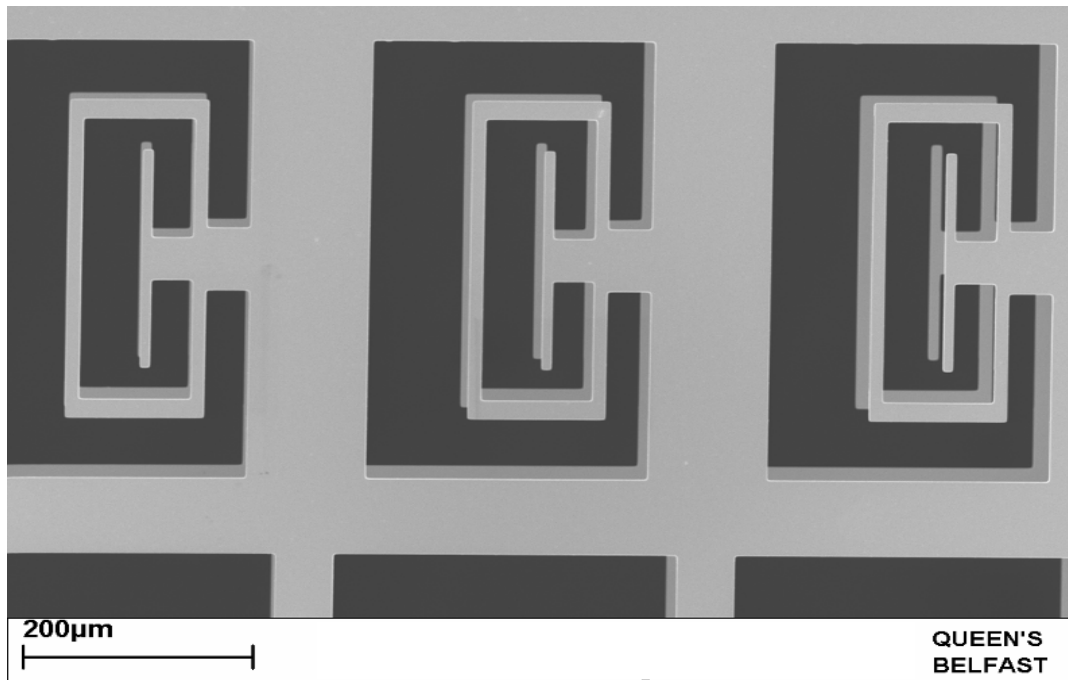


Freestanding 664 GHz FSS



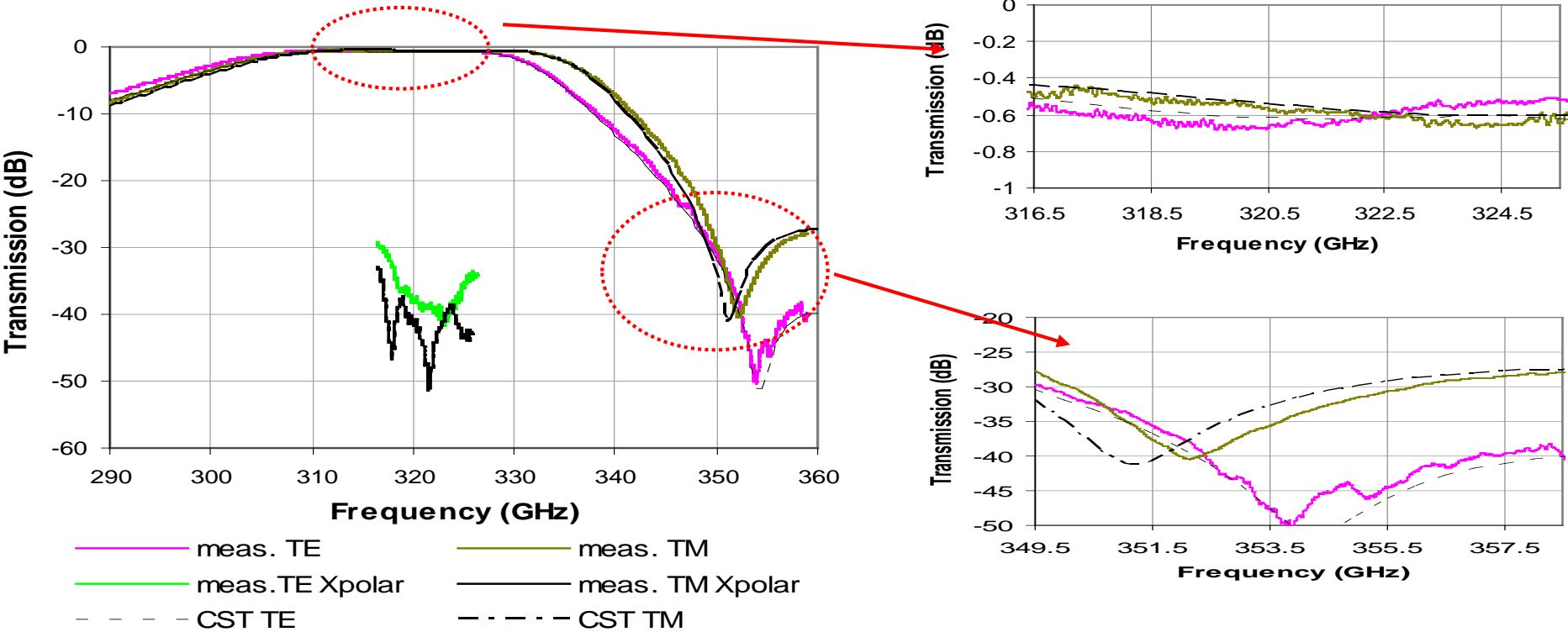
Freestanding Dual Polarisation FSS (1)

- SEM photographs of part of unit cells of the dual polarisation FSS
- Each 2 layer FSS is constructed using 5000 unit cells
 - Manufacturing tolerances $\pm 2\mu\text{m}$
- Transmission TE/TM: 316-326GHz
Reflection TE/TM: 349.5-357.5 GHz



Freestanding Dual Polarisation FSS (2)

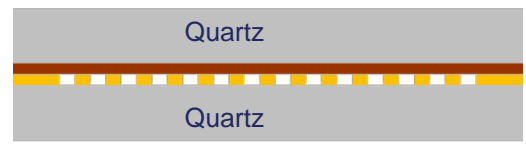
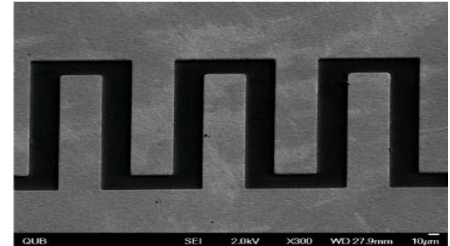
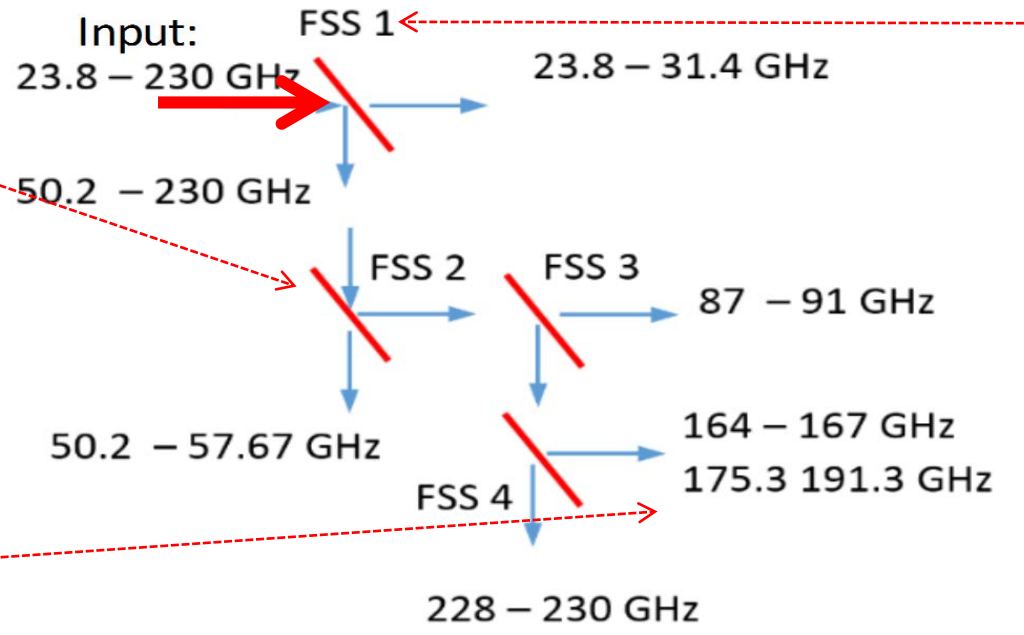
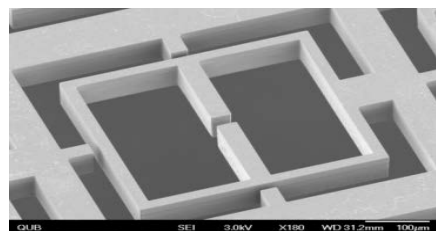
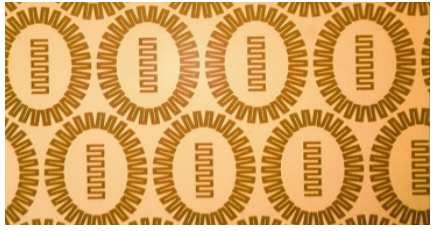
- Computed and measured spectral response at 45° incidence, TE & TM plane



Printed FSS – MWS Breadboard Radiometer

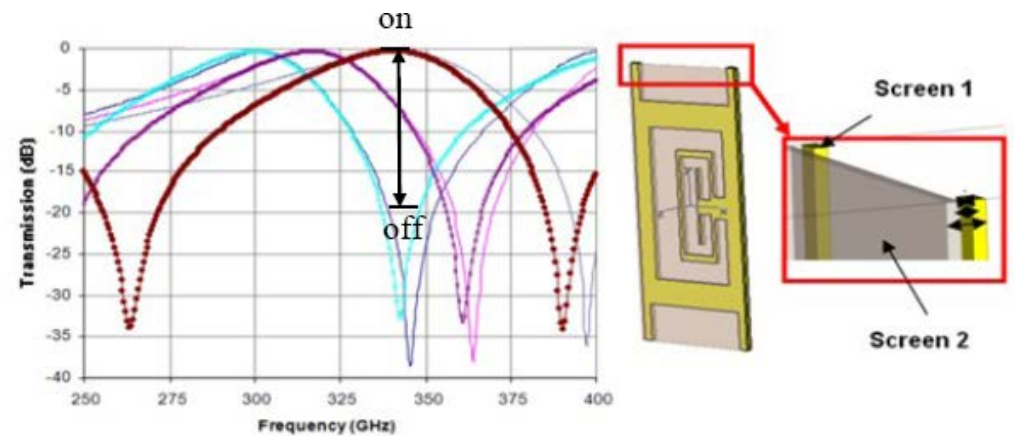
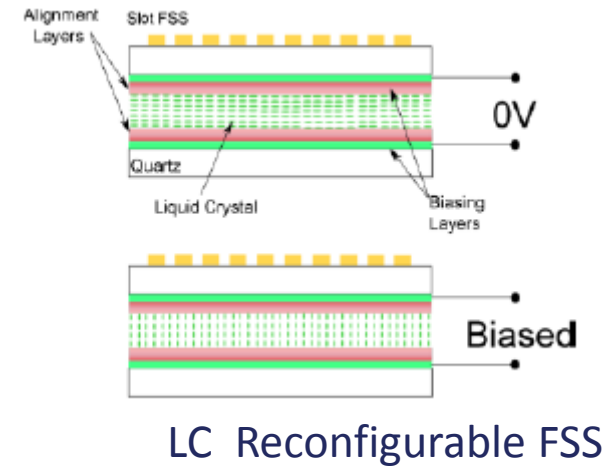
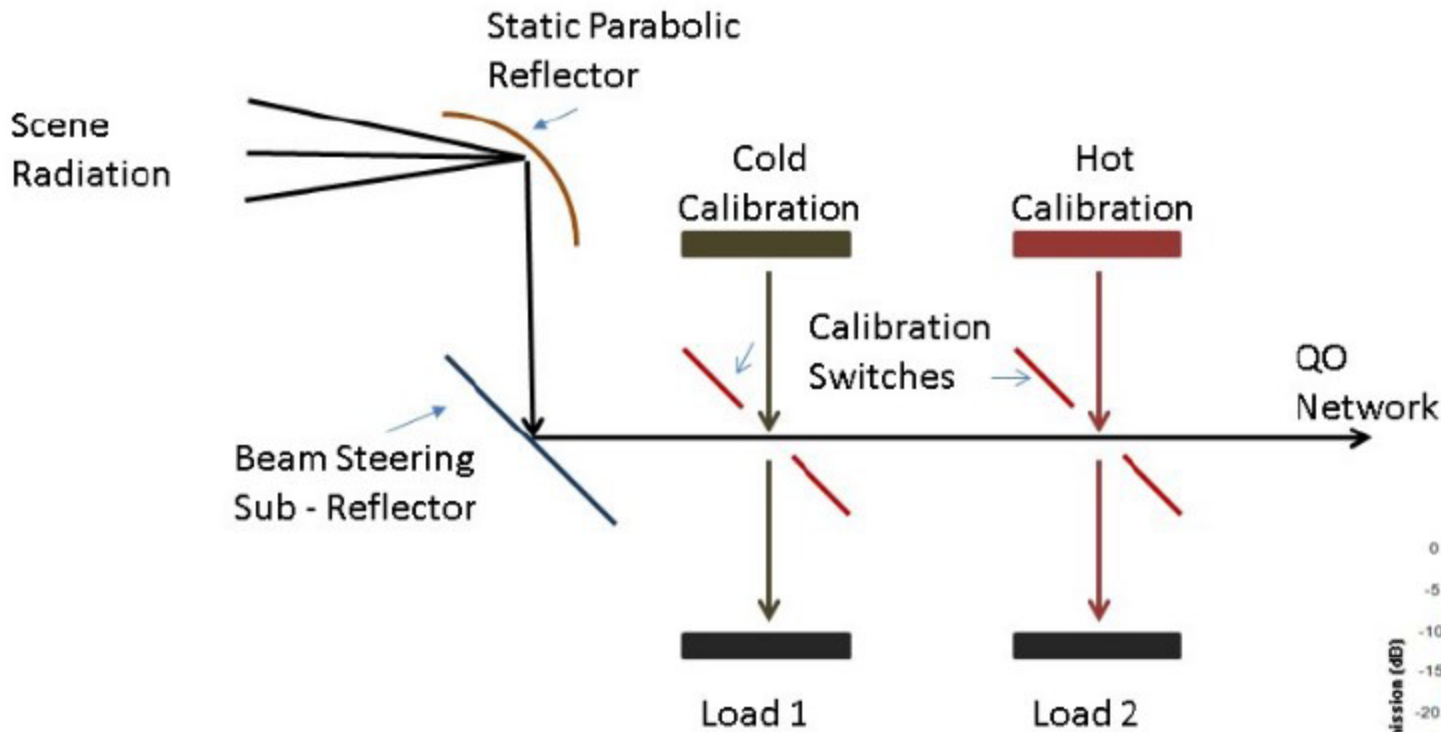
- Microwave Sounder Instrument, 23- 229 GHz

derivation of temperature and water profiles and information on cloud liquid water for numerical weather prediction and climate monitoring



Future Work

- New Electronic Switching Arrangement for mm-Wave Radiometer Calibration
- To provide a reduction in payload mass, footprint, power consumption and increase instrument reliability.



MEMS Reconfigurable FSS

Acknowledgements

